

WHAT IS CLAIMED IS:

1. An ultrasonic washing method of washing a thing to be washed by supplying ultrasonic-wave-applied cleaning fluid to the thing, said ultrasonic washing method comprising applying said ultrasonic wave to said cleaning fluid in such a manner that said ultrasonic wave is turned on and off repeatedly at specific time intervals.
- 10 2. The ultrasonic washing method according to claim 1, wherein said ultrasonic wave is superimposed on a pulse-like carrier wave.
- 15 3. The ultrasonic washing method according to claim 2, wherein a frequency of said carrier wave is lower than an oscillation frequency of said ultrasonic wave.
- 15 4. The ultrasonic washing method according to claim 1, wherein an oscillation frequency of said ultrasonic wave is 0.6 MHz or higher.
- 20 5. The ultrasonic washing method according to claim 1, wherein a duty ratio of the carrier wave is 80% or less.
- 25 6. A washing method comprising:
a first step of washing a thing to be washed by applying a first ultrasonic wave; and
a second step of washing the thing by applying a second ultrasonic wave.
7. The washing method according to claim 6,

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wherein said first ultrasonic wave and said second ultrasonic wave are applied to the thing for washing, while being alternated at predetermined time intervals.

8. The washing method according to claim 6,
5 wherein the oscillation frequency of said ultrasonic
wave is 0.6 MHz or higher.

9. The washing method according to claim 6,
wherein said first ultrasonic wave differs from
said second ultrasonic wave in any one of phase,
wavelength, and amplitude.

10. The washing method according to claim 9,
wherein the wavelength of said second ultrasonic wave
is different from an integral multiple of the wave-
length of said first ultrasonic wave or from $1/n$ (n is
15 an integer) of the wavelength of said first ultrasonic
wave.

11. The washing method according to claim 9,
wherein said first ultrasonic wave and said second
ultrasonic wave are applied to the thing for washing,
while being alternated at predetermined time intervals.

12. The washing method according to claim 9,
wherein an oscillation frequency of said ultrasonic
wave is 0.6 MHz or higher.

13. A semiconductor device manufacturing method comprising:

a first step of washing a surface at which a pattern including an island-like structure with a width

of 0.2 μm or less and an aspect ratio of 1.0 or more has been formed by applying a first ultrasonic wave; and

a second step of applying a second ultrasonic wave
5 for washing.

14. The semiconductor device manufacturing method according to claim 13, wherein said first ultrasonic wave differs from said second ultrasonic wave in any one of phase, wavelength, and amplitude.

10 15. A semiconductor device manufacturing method comprising:

a first step of washing a surface at which metal wires are exposed by applying a first ultrasonic wave; and

15 a second step of applying a second ultrasonic wave
for washing.

16. The semiconductor device manufacturing method according to claim 15, wherein said first ultrasonic wave differs from said second ultrasonic wave in any one of phase, wavelength, and amplitude.

17. A method of manufacturing matrix-type display devices, comprising:

a first step of washing a surface at which Si or metal wires are exposed by applying a first ultrasonic wave; and

a second step of applying a second ultrasonic wave for washing.

18. The method according to claim 17, wherein said first ultrasonic wave differs from said second ultrasonic wave in any one of phase, wavelength, and amplitude.